United States Patent [19]

Boulanger

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[54] **KEYBOARD SWITCH MATRIX ASSEMBLY WITH IMPROVED GUIDE MEANS FOR REDUCING TRANSFER OF BOUNDING MOTION TO MOVABLE CONDUCTOR**

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[52] **U.S. Cl.** ..... **200/5 A,** 200/159 B

[51] **Int. Cl.** **H01h 13/30**

[58] **Field of Search** ..... 200/5, 159 R, 159 B, 200/16 A, 166 BH, 5 A, 166 BE, 166 BF

[56] **References Cited**

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[57] **ABSTRACT**

A system employing a keyboard comprises a base mounting an array of key bodies each adapted to reciprocably move to cause actuation of electrical circuits. A diaphragm is employed as an electrical conductor moving into and out of engagement with underlying contacts upon actuation and deactuation of the key body. Bounding problems have been minimized while maintaining tactile feedback by locating a spring member between the key and its respective diaphragm providing increased motion differential and by providing elongated guiding surfaces which eliminate skew movement of the key. Several forms of keys and key mountings are shown embodying the elongated guideway including an elongated hub molded in the bezel plate and receiving a close fitting rod portion of the key, a separate tubular guide and close fitting plunger, and a key having tabs extending laterally therefrom, the tabs slidably received in grooves formed in the base. Another embodiment particularly useful where two or more circuits are to be actuated from the same key employs a second spring to maintain the diaphragm away from the underlying contacts until the key is depressed thereby precluding undesirable back circuits without the use of blocking diodes or the like.

18 Claims, 9 Drawing Figures